

# Plain soap as effective as antibacterial but without the risk

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Antibacterial soaps show no health benefits over plain soaps and, in fact, may render some common antibiotics less effective, says a University of Michigan public health professor.

In the first known comprehensive analysis of whether antibacterial soaps work better than plain soaps, Allison Aiello of the U-M School of Public Health and her team found that washing hands with an antibacterial soap was no more effective in preventing infectious illness than plain soap. Moreover, antibacterial soaps at formulations sold to the public do not remove any more bacteria from the hands during washing than plain soaps.

Because of the way the main active ingredient---triclosan---in many antibacterial soaps reacts in the cells, it may cause some bacteria to become resistant to commonly used drugs such as amoxicillin, the researchers say. These changes have not been detected at the population level, but e-coli bacteria bugs adapted in lab experiments showed resistance when exposed to as much as 0.1 percent wt/vol triclosan soap.

"What we are saying is that these e-coli could survive in the concentrations that we use in our (consumer formulated) antibacterial soaps," Aiello said. "What it means for consumers is that we need to be aware of what's in the products. The soaps containing triclosan used in the community setting are no more effective than plain soap at preventing infectious illness symptoms, as well as reducing bacteria on the hands."

The study, "Consumer Antibacterial Soaps: Effective or Just Risky" appears in the August edition of *Clinical Infectious Diseases*. The team looked at 27 studies conducted between 1980 and 2006, and found that soaps containing triclosan within the range of concentrations commonly used in the community setting (0.1 to 0.45 percent wt/vol) were no more effective than plain soaps. Triclosan is used in higher concentrations in

hospitals and other clinical settings, and may be more effective at reducing illness and bacteria.

Triclosan works by targeting a biochemical pathway in the bacteria that allows the bacteria to keep its cell wall intact. Because of the way triclosan kills the bacteria, mutations can happen at the targeted site. Aiello says a mutation could mean that the triclosan can no longer get to the target site to kill the bacteria because the bacteria and the pathway have changed form.

The analysis concludes that government regulators should evaluate antibacterial product claims and advertising, and further studies are encouraged. The FDA does not formally regulate the levels of triclosan used in consumer products.

Other antiseptic products on the market contain different active ingredients, such as the alcohol in hand sanitizers or the bleach in some antibacterial household cleaners. Aiello's team did not study those products and those ingredients are not at issue.

Source: University of Michigan

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